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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,781	05/30/2001	Daping Chu	109677	5070
25944	7590	05/31/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			HU, SHOUXIANG	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/866,781

Applicant(s)

CHU, DAPING

Examiner

Shouxiang Hu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,6,17-19 and 21-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 2,6,17-19 and 21-30 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 2, 6, 17-19 and 21-30 are objected to because of the following informalities and/or defects:

Claims 21 and 24 each recite the subject matters of "a plurality of comparators, each of which is provided corresponding to a pair of", but fails to clarify in which way(s) the recited comparators are respectively corresponding to the memory cells. It is not clear whether each of the comparators is only corresponding to an individual one of the memory cells, or to a row of the memory cells.

Claim 24 recites the term of "a plurality of first layers", but fails to clarify that the first layer in each of the memory cells is formed from a same single layer.

In claim 24, the term of "third electrodes each of" (page 6, line 5) should read as: --third electrodes, each of--.

In claim 24, the term of "between one second electrode" (second line from the bottom) should read as: --between the one second electrode--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 21-22 and 24-28, as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 102(b) as being anticipated by Bartlett (Bartlett et al., US 3,599,185).

Bartlett discloses a memory device (Figs. 1-5), comprising: first electrodes (DL, or 18); second electrode (CL or 20); third electrodes (BL or 16); a 2-D memory array having cells each having a first layer (14, piezoelectric, which is also naturally a ferroelectric material) and a second layer (12, ferroelectric), wherein the memory device of Bartlett inherently further comprises comparators and/or a circuits that inherently functions as comparators, since the memory device of Bartlett (especially see Fig.1 and col. 4, lines 12-36) operates inherently based on the comparison (either directly or indirectly) of the input and output voltages respectively corresponding to the first and third electrodes, i.e., the stored data is "0" or "1" depending on whether the output signal is negative or positive as compared to a positive input signal. Accordingly, the external circuits connected to each pair of the first and third electrodes of each of the memory cells in Bartlett, including but not limited to the relevant circuits shown in Figs. 1-5, have to be able to register/identify a positive input signal that is applied to the memory cell through the first electrode and to register/identify the sign of the output signal through the third electrode based on the sign of the input signal, so as to register/identify the stored data. Therefore, such external circuits as a whole are readable as a comparator for that memory cell, regardless the comparison operation therein is implemented directly or indirectly.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 17-19, 23, 29 and 30, as being best understood in view of the claim objections above are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett in view of Adachi (Adachi et al., JP 4-38866, 2/10/1992; of record).

The disclosure of Bartlett is discussed as applied claims 2, 21-22 and 24-28 above.

Although Bartlett does not expressly disclose the parallel and perpendicular features for the first, second and third electrodes, it is art known that, as evidenced in Adachi (Figs. 1, 2 and 7), such parallel and perpendicular arrangements for the electrodes (see the parallel electrodes on each level, and the perpendicular arrangements for electrodes between neighboring levels) are desirable for forming reducing electrode size and/or for reducing potential shortening between the electrodes.

Therefore, it would have being obvious to one of ordinary skill in the art at the time the invention was made to incorporate the parallel and perpendicular electrodes arrangements of Adachi into the device of Bartlett, so that a memory device with reduced electrode size and/or with reduced potential shortening between the electrodes would be obtained.

### ***Response to Arguments***

Applicant's arguments filed March 15, 2006, have been fully considered but they are not persuasive.

Applicant's main arguments include: Bartlett does disclose the recited comparators in the claimed invention. Responses to them have been fully incorporated into the claim rejections set forth above in this office action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

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Should you have questions on access to the Private PAIR system, contact the  
Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH  
May 25, 2006



**SHOUXIANG HU**  
**PRIMARY EXAMINER**